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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,023	08/27/2003	James Bertram Blackmon	7784-107/ DVA	5133

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EXAMINER
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HEALD, ROBYN SUE

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 11/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/649,023

Applicant(s)

BLACKMON ET AL.

Examiner

Robyn S. Heald

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/27/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 6-8, 10, 11-14, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Chenault (U.S. Patent 4,253,895).

With respect to claim 1, Chenault discloses a method for forming a glass structure 10 comprising: providing a glass member 12 with a generally planar surface; and securing a rigid interlayer 21 to the glass member 12 such that the rigid interlayer applies a compressive force to the surface of the glass member 12 (figures 1-3, column 1, lines 8-10, column 2, lines 20-24, lines 55-59 and lines 66-68).

Regarding claim 6, the glass member 12 is formed into a predetermined shape (figure 1-4, column 1, line 9, and column 2, lines 30-40).

Regarding claim 7, the glass member 12 is formed on a vacuum tool (figure 4 and column 2, lines 30-51).

Regarding claim 8, the step of securing the rigid interlayer 21 to the glass member 12 includes: applying a resin over an area corresponding to a rear surface of the glass member 12; and curing the resin to form the rigid interlayer 21 (figure 3 and column 2, lines 55-68).

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Regarding claim 10, the glass member 12 is a mirror 10 (figures 1-2, and column 2, lines 17-23).

With respect to claim 11, Chenault discloses a method for forming a mirror assembly 10 comprising: providing a mirror 10 having a front face that is associated with light reflection and a rear surface (figures 1-3, and column 2, lines 17-23); applying a resin to the rear surface of the mirror 10 (figure 3, and column 2, lines 55-59); curing the resin (column 2, lines 63-65); wherein the resin shrinks as it cures and applies a compressive force to the rear surface (column 2, lines 65-68).

Regarding claim 12, the compressive force has a magnitude that is sufficient to drive the whole mirror into a state of compression (column 2, lines 65-68).

Regarding claim 13, the mirror 10 is preformed such that the front surface of the mirror 10 conforms to a non-flat shape (figures 1-4, column 1, line 8, and column 2, lines 36-39).

Regarding claim 14, the non-flat shape is of parabolic shape (column 1, line 8, and column 2, lines 36-39).

Regarding claim 16, the method of forming further comprises providing a reinforcing structure 20 to the rear surface of the mirror 10, the reinforcing structure 20 supporting the mirror 10 (figures 1-3, and column 2, lines 59-65).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 3, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chenault in view of Anderson et al. (U.S. Patent 4,468,849).

Regarding claim 2, Chenault discloses a method of manufacturing a glass solar collector 1, comprising providing a glass member 12, securing a rigid interlayer 21 to the glass member 12, and securing a reinforcing structure 20 to the rigid interlayer 21. Chenault is silent as to securing a support member to the reinforcing structure 20 (figures 1-3, column 1, lines 8-10, and column 2, lines 10-23 and lines 52-68).

It is well known in the art of glass solar collectors to secure a support member to the supporting layers of a solar collector for added strength and means of attachment, as taught by Anderson et al. Anderson et al. discloses a glass solar collector having a glass member 47a and a support structure 37 secured thereto (figures 8, 10, and 11, column 1, lines 7-8, column 2, lines 53-59, column 5, lines 34-36, and column 6, lines 21-38).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to secure a support member to the reinforcing structure 20 of Chenault, because securing a support member adds strength to the glass solar collector 1 and provides a means for attachment.

Regarding claim 3, Chenault provides a reinforcing member, fiberglass filament rovings, and applies a resin to the reinforcing member, by way of mixture 22, to form the reinforcing structure 20 (figures 1-3, and column 2, lines 10-12 and lines 59-65); applies

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the reinforcing mixture 22 that forms the reinforcing structure 20 to the rigid interlayer 21 (figure 3 and column 2, lines 59-65); and cures the resin to bond the reinforcing structure 20 to the rigid interlayer 21 (figures 1-3, and column 2, lines 10-12 and lines 59-66).

Regarding claim 15, Chenault is not specific to the material that is used for the rigid interlayer 21. Anderson et al. teaches the use of a list of materials that may be used for bonding the strengthening layers of the glass structure, comprising epoxies and vinyl esters (column 6, lines 47-52). Since it is well known to use such materials for the bonding resin in the art of manufacturing glass structures, it would have been within perview of the skilled artisan to use an epoxy resin or an epoxy vinyl ester, as taught by Anderson et al., depending on the bonding and securing characteristics desired for the glass structure.

5. Claims 4, 5, 9, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chenault and Anderson et al. as applied to claim 3 above, and further in view of Fleischer (U.S. Patent 3,985,429).

Regarding claim 4, Chenault discloses an order of securing strengthening layers to the glass member 12, but is silent to whether these layers can be secured simultaneously when the resin is cured. It is well known in the art to cure the resin used for bonding, therefore securing the strengthening layers after all the layers have been applied, as taught by Fleischer (disclosing a glass structure supported by multiple strengthening layers; figures 2, and 4-6, and column 3, lines 67-68). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to secure

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the reinforcing structure 20 to the rigid interlayer 21 and secure the support member (taught by Anderson et al.) to the reinforcing structure 20 simultaneously when the resin is cured, because using such a step will decrease the amount of time in the process.

Regarding claims 5 and 9, it is well known in the art to cure the resin used for bonding strengthening layers of a glass structure at a temperature greater than or equal to a maximum temperature at which the glass structure will be used, as taught by Fleischer (curing at 350°F; column 4, line 1). Therefore it would have been within perview of the skilled artisan to cure the resin used for bonding the strengthening layers 21 and 20 to the glass member 12 at a temperature greater than or equal to the maximum temperature at which the glass structure 10 will be used, because curing at such temperatures will allow for the resin to maintain it's characteristics during use.

Regarding claim 17, Chenault discloses an interlayer of fiberglass rovings and resin to form the reinforcing structure 20, but is silent as to including a support member in the reinforcing structure 20 (figures 1-3, column 1, lines 8-10, and column 2, lines 10-23 and lines 52-68). It is well known in the art to include a support member in the reinforcing structure of a glass structure for added strength and means of attachment, as taught by Fleischer (disclosing a glass structure having a reinforcing structure 24 and 30 including support members 50 and 52; figures 2 and 4, column 3, lines 47-54, and column 7, lines 23-29).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a support member to the reinforcing structure 20 of

Chenault, because securing a support member adds strength to the glass structure 10 and provides a means for attachment.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chenault in view of Stang (U.S. Patent 4,124,277).

Regarding claim 18, Chenault discloses a method for manufacturing a mirror assembly 10 comprising a thin glass panel 12 (figures 1-3, and column 2, lines 19-25), but is not specific on the thickness of the panel. It is well known in the art to include thin glass panels in a mirror assembly when adding more layers for strengthening purposes, as taught by Stang. Stang discloses a method for making a lightweight concave mirror having multiple strengthening layers, comprising a glass panel 12 having a thickness of 0.090 inch (figure 2, column 1, lines 30-37, and column 3, lines 16-22). Therefore it would have been within perview of the skilled artisan to include a glass panel having a thickness of about 0.001 inch to 0.4 inch, because using a panel of such thickness creates a lightweight mirror costing less and having the strength to withstand environmental exposure.

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chenault in view of Fleischer and Stang.

With respect to claim 19, Chenault discloses a method for forming a mirror 10 having a glass member 12 having a reflective material 13, the glass member having a front surface and a rear surface (figure 2-3 and column 2, lines 19-24); forming the glass member 12 such that the light reflecting surface conforms to a predetermined shape (figures 2-3 and column 2, lines 30-39); applying a resin 21 to a surface of the



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glass member 12 opposite the light reflecting surface (figure 3 and column 2, lines 55-59); applying a reinforcing member 20 to at least one of the surface of the glass member 12 opposite the light reflecting surface and the resin (figure 2-3 and column 2, lines 59-65); and curing the resin 21 cooperates to form the rigid interlayer that supports the glass member 12, wherein the resin shrinks as it cures and applies compressive force to the surface of the glass member 12, the compressive force having a magnitude such that the entire cross-sectional thickness of the glass member 12 is maintained in a state of compression (column 2, lines 52-68). Chenault is not specific on the thickness of the glass member 12 and if a support structure can be applied to a surface of the glass member 12.

It is well known in the art to include thin glass panels in a mirror assembly when adding more layers for strengthening purposes, as taught by Stang. Stang discloses a method for making a lightweight concave mirror having multiple strengthening layers, comprising a glass panel 12 having a thickness of 0.090 inch (figure 2, column 1, lines 30-37, and column 3, lines 16-22). Therefore it would have been within perview of the skilled artisan to include a glass panel having a thickness of about 0.001 inch to 0.4 inch, because using a panel of such thickness creates a lightweight mirror costing less and having the strength to withstand environmental exposure.

It is well known in the art to apply a support member along with the reinforcing member of a glass structure for added strength and means of attachment, as taught by Fleischer. Fleischer discloses a glass structure having a reinforcing member 24 and 30 and support members 50 and 52 applied thereto opposite the light reflecting surface.

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The resin used is then cured after the strengthening layers have been applied, where the reinforcing member 23 and 30 and the support structure 50 and 52 cooperate to form a rigid interlayer 20 that supports the glass member 12 and facilitates mounting the mirror assembly 10 (figures 2 and 4, column 3, lines 47-54 and lines 67-68, and column 7, lines 23-29).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to apply a support member to the at least one of the surface of the glass member 10 of Chenault opposite the light reflecting surface and the resin 21 and curing the resin 21 such that the resin 21, the reinforcing member 20, and the support structure cooperate to form the rigid interlayer that supports the glass member 12 and facilitates mounting of the mirror assembly 10, because securing a support member adds strength to the mirror assembly 10 and provides a means for attachment.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Robyn S. Heald** whose telephone number is **571-272-2362**. The examiner can normally be reached on Mon-Thur, 8:00-5:30; every second Fri, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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